

Prevalence of posterior circulation vascular abnormalities in patients with transient global amnesia: a single center observational study

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OBJECTIVES

The aetiology of transient global amnesia (TGA) is not clearly identified. Its pathophysiological mechanism is thought to involve the hippocampus, which is vascularized by the posterior circulation. The presence of vascular abnormalities has been hypothesized as a possible risk factor for TGA. The objective of this study is to evaluate the prevalence of intra- and extracranial posterior circulation abnormalities in a population of patients with TGA.

METHODS

We performed a retrospective observational study including patients admitted to the neurology ward at Tor Vergata University Hospital and discharged with a diagnosis of TGA from January 2023 to May 2025. We excluded patients who did not undergo either complete CT angiography or MR angiography and Doppler ultrasound studies. We collected clinical and radiological features; in particular, we looked for vascular abnormalities such as arterial hypoplasia (cut-off for VA hypoplasia < 2.5 mm and for PCA hypoplasia < 1 mm), fetal-type arteries and/or other course/morphological irregularities. Results: We selected 37 TGA patients during the study period. We then excluded 7 patients because of a lack of vascular imaging, resulting in a final study population of 30 patients (mean age 67 ± 8.4 years; 70% females) (Fig.1). Fifteen patients (50%) had acute hippocampal DWI hyperintensities. Posterior circulation vascular abnormalities were found in 17 patients (56.6%). VA hypoplasia was found in 10 patients (33.3%) and was the most frequent variant, followed by PCA-P1 hypoplasia in 6 patients (20%), fetal-type PCA in 3 patients (10%) and BA dolichoectasia in 1 patient (Fig.2). Three patients (10%) had more than one abnormality.

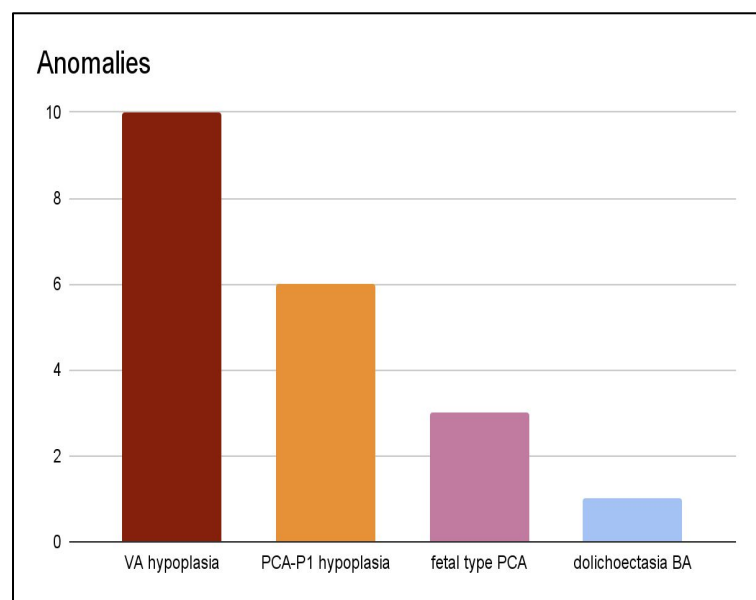


Fig.2 TGA Anomalies: VA hypoplasia in 10 patients (33.3%), most frequent variant, followed by PCA-P1 hypoplasia in 6 patients (20%), fetal-type PCA in 3 patients (10%) and BA dolichoectasia in 1 patient.

All patients	N=30
TGA features	Table 1
Age (years, mean +/- SD)	67 ± 8.4
Sex (Female %)	70
Comorbidity	Table 2
Arterial hypertension (%)	19/30 (63.3)
Dyslipidemia (%)	14/30 (46.6)
Heart failure (%)	5/30 (16.6)
Hypothyroidism (%)	8/30 (26.6)
Headache (migraine) (%)	2/30 (6.6)
Diabetes mellitus (%)	4/30 (13.3)
MRI hippocampal lesion	Table 3
Positive (%)	15/30 (50)

Fig.1 TGA patients: general (Table 1 - 2)) and radiological characteristics (Table 3).

DISCUSSION

The results indicate that posterior circulation vascular abnormalities are common in patients with TGA compared to ranges reported in the general population: 8-11% for VA hypoplasia, 10-15% for PCA-P1 hypoplasia and 5-10% for fetal-type PCA. When changes in blood pressure occur, these abnormalities could facilitate a temporary hemodynamic impairment in the hippocampal region, which is particularly vulnerable to flow reductions, which in turn may cause reversible dysfunction.

CONCLUSION

Posterior circulation vascular abnormalities may contribute to TGA pathogenesis through transient hemodynamic mechanisms, although further studies are needed to investigate this association.

References

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DI NEUROLOGIA**